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Rhodora

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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

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REPORTS ON THE FLORA OF MASSACHUSETTS—IV

The sequence of genera and species in this report is largely the same as that in Hitchcock's Manual of the Grasses of the United States, since most students of the grasses accept this as being more nearly correct in a phylogenetic sense than the sequence used in the seventh edition of Gray's Manual. Unless otherwise noted, explanations of unfamiliar names can be found in Hitchcock's Manual. Changes due to the homonym rule are largely self-explanatory.

The variation in frequency between the species of grasses is probably greater than in any other family. Some families may show a large list of casuals based on a single record each just as in the grasses, but at the other extreme none can compare with the meadow and salt marsh grasses in the sheer extent of area covered and multiplicity of individuals. It has been difficult to estimate the frequency of the less common species, especially where we had to rely on herbarium material since collecting has been much more intensive in some counties than in others.

GRAMINEAE (Grass Family)

BROMUS L. Brome Grass

B. CATHARTICUS Vahl. (*B. unioloides* (Willd.) Raspail). South Boston (RHODORA, xv. 148 (1913)).

B. INERMIS Leyss. Sporadic weed in fields; Sandwich and Hyannisport in Barnstable County.

Forma ARISTATUS (Schur) Fernald in RHODORA, xxxv. 316 (1933). Apparently on the increase; Needham, Hingham and Nantucket in the East, occasional in Worcester County, Enfield and Amherst in Hampshire and Stockbridge in Berkshire.

B. ciliatus L. (*B. ciliatus* var. *denudatus* (Wiegand) Fernald in large part but not as to type; cf. Rhodora, xxxii. 68 (1930)). Thickets and borders of woods; occasional in Middlesex County, becoming rather common in Worcester County and westward.

Var. **intonsus** Fernald in Rhodora, xxxii. 70 (1930). Occasional in Essex and Middlesex Counties and westward.

B. Dudleyi Fernald in Rhodora, xxxii. 63 (1930). Limy or neutral bogs and wet thickets; Sherborn and Hopkinton in Middlesex County and occasional in Worcester County and westward.

B. purgans L. Rocky woods; occasional in the vicinity of Boston and from Worcester County westward.

Forma **laevivaginatus** Wiegand in Rhodora, xxiv. 92 (1922). Same range as the species, but also Boxford in Essex County.

B. latiglumis (Scribn.) Hitchc. (*B. altissimus* Pursh (1814), not Gilib. (1792)). Alluvial banks; Merrimac in Essex County, Sandwich in Barnstable, Mount Toby in Franklin, Hadley and Amherst in Hampshire, Chicopee and Springfield in Hampden and common in Berkshire County.

B. Kalmii Gray. Dry ground; Dorchester in Suffolk County, occasional from western Worcester County westward.

B. brizaeformis Fisch. & Mey. Waste ground; Charlestown and South Boston in Suffolk County and New Bedford in Bristol.

B. secalinus L. Waste ground; frequent throughout.

B. commutatus Schrad. (*B. pratensis* Ehrh. ex Hoffm. (1800) not Lam. (1785)). Waste ground; occasional in the Boston District, and in Bristol, Nantucket, Worcester and Berkshire Counties.

B. mollis L. (*B. hordeaceus* of Manual, not L.; cf. Rhodora, xxxv. 316 (1933)). Fields and waste ground; rare in Essex County, frequent elsewhere in the East, Worcester in Worcester County, Amherst in Hampshire, and frequent in Berkshire County.

Forma leiostachys (Hartm.) Fernald in Rhodora, xxxv. 316 (1933). (*B. hordeaceus* var. *leptostachys* of Manual, not Beck). Salem and East Gloucester in Essex County, Dorchester in Suffolk, Nantucket (Bicknell in Bull. Torr. Bot. Club xliv. 375 (1917)), Worcester.

B. racemosus L. Waste ground; occasional near Boston and in Bristol and Worcester (Jackson, Fl. Worcester Co. 21 (1909)) Counties.

B. japonicus Thunb. Waste ground; Boston.

Var. porrectus Hackel. (Cf. Fernald in Rhodora, xliii. 529 (1941)). Somerville in Middlesex County, Boston in Suffolk and Stoughton in Norfolk.

B. rigidus Roth. (*B. villosus* Forsk. (1775), not Scop. (1772)). Waste places; South Boston (Rhodora, xv. 148 (1913)).

Var. GUSSONEI (Parl.) Coss. & Dur. Medford in Middlesex County, Boston.

B. STERILIS L. Boston, Barnstable, Provincetown and Nantucket in the East.

B. RUBENS L. In wool waste, North Billerica in Middlesex County, *C. W. Swan*, in 1883.

B. TECTORUM L. Waste ground; common in the East, occasional in Worcester County and rare westward.

VULPIA K. C. Gmelin

(*Festuca* of Manual in part; cf. Fernald in RHODORA, xlvii. 107 (1945)).

V. octoflora Walt. var. **tenella** (Willd.) Fernald in RHODORA, xlvii. 107 (1945). Dry sterile soil; frequent in the East, occasional in Worcester, Hampshire and Hampden Counties.

V. DERTONENSIS (All.) Volk. South Boston, *C. E. Faxon*, in 1878.

V. MYUROS L. Dry fields and waste ground; occasional in Middlesex, Suffolk, Bristol, Barnstable, Dukes and Nantucket Counties.

FESTUCA L. FESCUE GRASS

F. ELATIOR L. Meadows and waste ground; common throughout.

F. obtusa Biehler (Cf. Fernald in RHODORA, xlvii. 199 (1945)). (*F. nutans* Biehler (1807), not Moench. (1794)). Moist rich woods; frequent in the Boston District and westward, but known only from Sandwich and Chilmark in the Southeast.

F. rubra L. (For forms and varieties cf. RHODORA, xxxv. 132 (1933)). Dry sandy soil; frequent in the East and in Worcester and Berkshire Counties, rare in the Connecticut Valley.

Forma **megastachys** (Gaud.) Holmb. Amesbury in Essex County and Boston and Roxbury in Suffolk.

Forma **squarrosa** (Fries) Holmb. (*F. rubra* var. *subvillosa* Mert. & Koch). Dorchester in Suffolk County and Amherst in Hampshire.

Var. **commutata** Gaud. Occasional in the East.

Var. **multiflora** (Hoffm.) Aschers. & Graebn. East Gloucester in Essex County, Shirley in Middlesex, Walpole in Norfolk, Harwich in Barnstable and Petersham in Worcester.

Var. **juncea** (Hackel) Richter. Gay Head in Dukes County, *F. C. Seymour.*

Var. VIVIPARA Norman, Fl. Arct. Norveg. 53 (1893). Railroad embankment, Lexington, Middlesex County, *C. H. Knowlton*, Sept. 20, 1903.

Not to be confused with *F. prolifera* (Piper) Fernald in Rhodora, xxxv. 133 (1933), which does not occur south of northern Maine and New Hampshire.

F. ovina L. Occasional, but not recorded from Dukes County.

Forma **hispidula** (Hackel) Holmb. (*F. ovina* var. *hispidula* Hackel; cf. Fernald in Rhodora, xxxv. 165 (1933)). Occasional in the Boston District and in Plymouth, Nantucket (Bicknell in Bull. Torr. Bot. Club, xliv. 374 (1917)) and Berkshire Counties.

Var. duriuscula (L.) Koch. Reported from Middlesex, Suffolk, Norfolk, Plymouth, Bristol, Barnstable, Dukes, Nantucket (Bicknell in Bull. Torr. Bot. Club, xxxv. 475 (1908)), Worcester and Hampshire Counties.

F. capillata Lam. (*F. ovina* var. *capillata* Hackel; cf. Hubbard in Rhodora, xviii. 235 (1916)). Dry soil; occasional throughout but more frequent in the East and in Worcester County.

SCLEROPOA Griseb.

S. rigida (L.) Griseb. Casual introduction in waste places; Boston, *C. E. Perkins*, in 1878.

PUCCINELLIA Parl.

P. fasciculata (Torr.) Bicknell. (*P. Borreri* (Bab.) Hitchc.; cf. Fernald & Weatherby in Rhodora, xviii. 9 (1916)). Salt marshes; Newbury in Essex County, occasional in Bristol and Barnstable Counties and frequent in Nantucket.

P. maritima (Huds.) Parl. Salt marshes; common along the coast from Essex to Norfolk County, occasional in Barnstable County.

P. distans (L.) Parl. Waste ground, not so clearly halophytic as the other species; Suffolk County and North Adams in Berkshire County.

Var. angustifolia (Blytt) Holmb. in Hartmans Handb. Scand. Fl. ed. 12, i. pt. 2, 216 (1926). (*Glyceria distans* var. *angustifolia* Blytt, Norges Fl. 136 (1861); *G. distans* forma or var. *tenuis* Uechtritz in Crépin, Notes Pl. Rar. Belg. fasc. 5, 229 (1865); *Puccinellia distans* var. *tenuis* (Uechtritz) Fernald & Weatherby in Rhodora, xviii. 5, 12 (1916)). West Lynn, Boston and Nantucket in the East.

P. paupercula (Holm.) Fernald & Weatherby var. **alaskana** (Scribn. & Merrill) Fernald & Weatherby in Rhodora, xviii. 6, 18 (1916). (*P. pumila* (Vasey) Hitchc.; cf. Fernald & Weatherby in Rhodora, xxxvi. 346 (1934)). Salt marshes; rare in Plymouth, Barnstable and Dukes Counties.

GLYCERIA R. Br. Manna Grass

G. acutiflora Torr. Swamps, often in shallow water; occasional throughout.

G. borealis (Nash) Batchelder. Swamps or shallow water; occasional from the Boston District westward, becoming common in Berkshire County, known only from Easton in the Southeast.

G. septentrionalis Hitchc. Swamps and shallow water; Lynnfield in Essex County, frequent in the southern half of the Boston District, occasional from Worcester County westward, and in the Southeast in Plymouth, Bristol and Nantucket Counties.

G. fluitans (L.) R. Br. Shallow water; Nantucket, *Nellie F. Flynn*, in 1909.

G. obtusa (Muhl.) Trin. Swamps; frequent in the coastal counties but not reported from Nantucket, West Boylston and Douglas in Worcester County.

G. melicaria (Michx.) Hubbard. (*G. Torreyana* Hitchc.; cf. Rhodora, xiv. 186 (1912)). Swampy woods; Haverhill in Essex County, occasional in southern Worcester County and in the Connecticut Valley, becoming frequent in Berkshire County.

G. canadensis (Michx.) Trin. Rattlesnake Grass. Wet ground; common throughout.

G. laxa Scribn. (Cf. Fernald & Wiegand in Rhodora, xii. 135 (1910)). Wet ground; Everett in Middlesex County, occasional in the Connecticut Valley.

G. striata (Lam.) Hitchc. in Proc. Biol. Soc. Wash. xli. 157 (1928). (*G. nervata* Trin.). Fowl Meadow Grass. Wet ground and shallow water; common on the mainland and Nantucket (Bicknell in Bull. Torr. Bot. Club, xxxv. 196 (1908), as *Panicularia nervata*), and Naushon and Chilmark in Dukes County.

Var. **stricta** (Scribn.) Fernald in Rhodora, xxxi. 47 (1929). Occasional in the Boston District and in Worcester and Berkshire Counties.

G. grandis Wats. (*Panicularia americana* (Torr.) MacMillan). Reed Meadow Grass. Moist ground and shallow water; frequent in the Boston District and Berkshire County, occasional elsewhere but not reported from Plymouth or Dukes County.

G. pallida (Torr.) Trin. Sloughs and shallow water; occasional in the eastern counties, rare westward.

G. Fernaldii (Hitchc.) St. John in Rhodora, xix. 76 (1917). (*G. neogaea* sensu Hitchc. Man. Grass. U. S. 94 (1935), non Steud.; cf. Chase in Am. Journ. Bot. xxiv. 33 (1937)). Wet ground and shallow water; rare in Middlesex, Suffolk, Norfolk, Plymouth, Barnstable, Worcester and Berkshire Counties.

POA L. Meadow Grass. Spear Grass

P. Chapmaniana Scribn. Recently introduced weed; Haverhill in Essex County and Amherst in Hampshire.

P. annua L. Lawns, yards and waste ground; common.

P. compressa L. Canada Blue Grass. Sterile, usually dry soil; common.

P. pratensis L. June Grass, Kentucky Blue Grass. Fields; very common.

P. angustifolia L. (*P. pratensis* of Manual in part; cf. Rhodora, xlviii. 22 (1946)). Apparently much less common than the preceding and in dryer habitats.

P. trivialis L. Moist ground, either open or wooded; occasional at low altitudes.

P. alsodes Gray. Moist woods; Lancaster and Worcester in Worcester County, common in the Connecticut Valley and in Berkshire County.

P. languida Hitchc. (*P. debilis* Torr. (1843), not Thuill. (1799)). Rich woods; Ashby in Middlesex County, occasional in Franklin, Hampden and Berkshire Counties.

P. saltuensis Fernald & Wiegand in Rhodora, xx. 122 (1918). Woodland thickets and recent clearings; occasional in northwestern Middlesex County and from northern Worcester County westward.

P. nemoralis L. Meadows and open woods; occasional in the Boston District and in Berkshire County.

P. palustris L. (*P. triflora* Gilib.; cf. Hubbard in Rhodora, xviii. 235 (1916)). Wet or dry ground; common, but not reported from Plymouth, Dukes or Franklin County.

BRIZA L. Quaking Grass

B. maxima L. Boston, *C. E. Perkins* in 1878 (Rhodora, xv. 144 (1913)).

B. media L. Fields and waste ground; occasional in the Boston District and rare in Worcester, Franklin and Hampshire Counties.

(*B. minor* L. It has not been possible to verify the report of this species in Rhodora, xlviii. 18 (1946) and presumably it was recorded from Massachusetts by error).

DIPLACHNE Beauv.

(*Leptochloa* of Manual in part, cf. Nash in Britton & Brown, Ill. Fl. ed. 2, i. 110, 236 (1913)).

D. uninervia (Presl) Parodi in Univ. Nac. Buenos Aires Rev. Céntr. Estud. xviii. 147 (1925). (*Leptochloa imbricata* Thurb.). Woolen mill waste; North Billerica in Middlesex County, *C. W. Swan* in 1885.

D. maritima Bicknell. (*Leptochloa fascicularis* of Manual in part; cf. Nash in Britton & Brown, Ill. Fl. ed. 2, i. 236, 237 (1913)) Waste ground, Boston, on tidal shores in Dukes County on Naushon, and on Nantucket (Bicknell in Bull. Torr. Bot. Club, xxxv. 195 (1908)).

ERAGROSTIS Beauv.

E. hypnoides (Lam.) BSP. Sandy river banks and lake margins; rare in the Connecticut Valley and Berkshire County.

E. capillaris (L.) Nees. Dry sand and gravel; occasional in the Boston District and in Worcester, Hampshire and Berkshire Counties, Erving in Franklin County.

E. Frankii (Fisch., Mey. & Lall.) Steud. Riverbanks and moist gravelly soil; Amherst in Hampshire County, Springfield in Hampden and Sheffield and Alford in Berkshire.

E. PILOSA (L.) Beauv. (*E. pilosa* of Manual in part; cf. Wiegand in RHODORA, xix. 93 (1917) and Long, xxi. 133 (1919)). Waste ground; Salisbury, Marblehead, and Gloucester in Essex County, Scituate in Plymouth, Eastham in Barnstable, Berlin and Shrewsbury in Worcester, Sunderland in Franklin, Amherst, Hadley and Northampton in Hampshire and Granville in Hampden.

E. pectinacea (Michx.) Nees. (*E. pilosa* of Manual in part, cf. above. *E. Purshii* Schrad., cf. Farwell in Am. Midland Nat. x. 306 (1927)). Open sandy ground and waste places; frequent.

E. MULTICAULIS Steud. (*E. peregrina* Wiegand, cf. Fernald in RHODORA, xlvii. 108 (1945)). Dry gravelly soil and waste places; occasional in the Boston District and in Barnstable, Franklin, Hampshire and Berkshire Counties, frequent in Worcester County.

E. MEGASTACHYA (Koeler) Link. (*E. major* Host., *E. cilianensis* auctt. in part, cf. Ascherson & Graebner, Syn. Mitteleurop. Fl. ii. 371 (1900)). Waste ground; frequent about Boston and Worcester, occasional elsewhere, but not reported from Hampden County.

E. POAEOIDES Beauv. (*E. minor* Host.). Waste ground; rare weed in Middlesex, Suffolk, Norfolk, Dukes, Nantucket, Hampshire and Berkshire Counties.

E. HIRSUTA (Michx.) Nees. Dry soil; recorded from Massachusetts without further locality (Hitchc. Man. Grass. U. S. 158 (1935)).

E. INTERMEDIA Hitchc. Waste land; South Boston, *C. E. Faxon* in 1878.

E. spectabilis (Pursh) Steud. (*E. pectinacea* var. *spectabilis* (Pursh) Gray; cf. Farwell in Am. Midland Nat., x. 306 (1927)). Dry sandy soil; occasional in Middlesex, Suffolk and Barnstable Counties, frequent in Dukes and Nantucket Counties.

Var. **sparsihirsuta** Farwell in Am. Midland Nat. x. 306 (1927). (*E. pectinacea* of Manual). Common in the East and Worcester County, frequent westward.

MOLINIA Schrank

M. CAERULEA (L.) Moench. Waste land; South Boston, *W. S. Ripley, Jr.*, in 1916.

DISTICHLIS Raf. Spike Grass. Alkali Grass

D. spicata (L.) Greene. Salt marshes; common along the coast.

DACTYLIS L. Orchard Grass

D. GLOMERATA L. Fields, roadsides and waste places; common.

Var. DETONSA Fries (Cf. Fernald in Rhodora, xxxv. 137 (1933)). Noted from Middlesex, Suffolk, Plymouth, Nantucket, Worcester, Hampshire and Hampden Counties.

Var. CILIATA Peterm. (Cf. above). Noted from the Boston District and Bristol, Barnstable, Dukes, Worcester and Berkshire Counties.

CYNOSURUS L. Dogtail

C. CRISTATUS L. Fields and waste ground; occasional in Boston and vicinity, Worcester in Worcester County, Amherst in Hampshire, Springfield in Hampden and Stockbridge in Berkshire.

PHRAGMITES Trin. Reed

P. communis Trin. var. **Berlandieri** (Fourn.) Fernald in Rhodora, xxxiv. 211 (1932). Pond margins and swamps; near the coast, also Westborough in Worcester County, Monson in Hampden and rare stations in Berkshire.

Var. STOLONIFERA G. F. W. Meyer. (Cf. Hegi, Fl. Mittel-Europa, ed. 2, i. 367 (1936)). South Boston, *K. M. Wiegand* in 1911.

SCHIZACHNE Hack.

S. purpurascens (Torr.) Swallen in Journ. Wash. Acad. Sci. xviii. 204, fig. 1 (1928). (*Melica striata* (Michx.) Hitchc.). Rocky woods; Ashburnham in Worcester County, Bernardston and Sunderland in Franklin, Amherst in Hampshire, and frequent in the valley area of Berkshire County.

TRIODIA R. Br.

T. flava (L.) Smyth. (*Tridens flavus* (L.) Hitchc.). Tall Red Top. Dry fields; rare in Middlesex, Norfolk, Plymouth, Barnstable, Dukes, Nantucket (Bicknell in Bull. Torr. Bot. Club, xxxv. 195 (1908)), Worcester, Franklin and Hampshire Counties.

TRIPLASIS Beauv.

T. purpurea (Walt.) Chapm. Sand Grass. Dry sandy soil; occasional in the Boston District, usually near the coast, frequent in the Southeast.

AGROPYRON Gaertn.

A. repens (L.) Beauv. (For varieties and forms cf. Rhodora, xxxv. 182 (1933)). Couch Grass, Quitch Grass. Fields, waste and cultivated ground; very common throughout.

Forma aristatum (Schum.) Holmb. Occasional in Essex, Plymouth, Barnstable, Dukes, Nantucket, Hampshire and Berkshire Counties, frequent in Worcester County.

Forma trichorrhachis Rohlena. Occasional in Middlesex, Suffolk, Barnstable, Nantucket and Worcester Counties.

Forma pilosum (Scribn.) Fernald. Essex, Suffolk, Nantucket (Bicknell in Bull. Torr. Bot. Club, xxxv. 476 (1908)) and Worcester Counties.

Var. subulatum (Schreb.) Reichenb. Frequent in the Boston District and in Worcester County, rare in Plymouth, Barnstable and Hampshire Counties.

Var. subulatum forma Vaillantianum (Wulf. & Schreb.) Fernald. Found in the Boston District and in Barnstable, Dukes, Nantucket and Berkshire Counties, frequent in Worcester County.

Var. subulatum forma heberhachis Fernald. Andover in Essex County and Sherborn in Middlesex.

Var. subulatum forma setiferum Fernald. Rare in Essex, Suffolk, Norfolk, Dukes, Nantucket and Worcester Counties.

A. pungens (Pers.) R. & S. Beaches or salt marsh; along the coast in Ipswich, Gloucester, Boston, Cohasset and Scituate, and frequent in Barnstable County.

A. trichophorum (Link) Richt. Lynn in Essex County (Cf. Hitchc. Man. Grass. U. S. 236 (1935)).

A. trachycaulum (Link) Steud. var. **novae-angliae** (Scribn.) Fernald in Rhodora, xxxv. 174 (1933). (*A. tenerum* in New England of Manual, *A. pauciflorum* (Schwein.) Hitchc.; cf. Fernald in Rhodora, xxxvi. 417 (1934)). Bogs and open rocky woods; rare in Essex, Middlesex, Franklin and Berkshire Counties.

Var. **glaucum** (Pease & Moore) Malte. (*A. caninum* of Manual, cf. Rhodora, xxxv. 177 (1933)). Rare in Middlesex, Norfolk, Franklin, Hampshire and Berkshire Counties.

TRITICUM L.

T. aestivum L. Wheat. Waste ground; occasional escape throughout.

SECALE L. Rye

S. cereale L. Waste ground; occasional escape throughout.

ELYMUS L. Wild-rye

E. arenarius L. var. **villosus** E. Meyer. (*E. arenarius* of Manual, not L., *E. mollis* Trin.; cf. St. John in Rhodora, xvii. 98 (1915)). Coastal dunes; East Gloucester and Provincetown.

E. villosus Muhl. (*E. striatus* of Manual; cf. Rhodora, xxxv. 194 (1933)). Woods and banks; rare in the Boston District and Hampden County, frequent in Berkshire County.

Forma **arkansanus** (Scribn. & Ball) Fernald in Rhodora, xxxv. 195 (1933). Plum Island in Essex County.

E. canadensis L. (*E. robustus* var. *vestitus* Wiegand; cf. Rhodora, xxxv. 187 (1933)). Dry uplands; occasional in Middlesex, Suffolk, Norfolk, Franklin and Hampden Counties, Somerset in Bristol County.

Forma **glaucifolius** (Muhl.) Fernald in Rhodora, xxxv. 191 (1933). (*E. robustus* Scribn. & Sm., *E. brachystachys* Scribn. & Ball). Recorded from Essex, Middlesex, Norfolk, Bristol, Worcester and Hampden Counties.

E. Wiegandii Fernald in Rhodora, xxxv. 192 (1933). (*E. canadensis* of Wiegand, not L.). Alluvial soil; occasional in the Connecticut Valley and common in the valley area of Berkshire County.

Forma **calvescens** Fernald in Rhodora, xxxv. 192 (1933). Williamstown in Berkshire County, *R. Hoffmann* in 1916.

E. riparius Wiegand in Rhodora, xx. 84 (1918). Riverbanks and low ground; Andover in Essex County, Lancaster in Worcester, occasional in the Connecticut Valley and common in the valley area of Berkshire County.

E. virginicus L. (For varieties and forms cf. Rhodora, xxxv. 197 (1933)). Moist ground; occasional in Essex, Middlesex, Norfolk, Plymouth, Bristol, Barnstable, Dukes and Worcester Counties, Palmer in Hampden County, common in Berkshire County.

Forma **hirsutiglumis** (Scribn.) Fernald. Occasional in Essex, Middlesex, Norfolk, Plymouth, Hampshire, Hampden and Berkshire Counties.

Forma **jejunus** (Ramaley) Bush. Enfield in Hampshire County and Wilbraham and Palmer in Hampden.

Var. **halophilus** (Bicknell) Wiegand in Rhodora, xx. 83 (1918). Brackish marshes and sand; frequent along the coast.

Var. **submuticus** Hook. Chelsea Beach in Revere, Suffolk County, and Cohasset in Norfolk County.

Var. **glabriflorus** (Vasey) Bush. Ayer in Middlesex County, *W. H. Manning* in 1882.

Var. **glabriflorus** forma **australis** (Scribn. & Ball) Fernald. Canton in Norfolk County and Chippaquidick Island in Dukes.

HYSTRIX Moench. Bottle-brush Grass

H. patula Moench. Open usually rocky woods; occasional in the Boston District and westward, becoming frequent in the valley area of Berkshire County.

Var. **Bigeloviana** (Fernald) Deam in Indiana Dept. Conserv. Pub. lxxxii. 117 (1929). (*Asperella Hystrix* var. *Bigeloviana* Fernald in Rhodora, xxiv. 230 (1922)). Occasional in Essex, Middlesex and Suffolk Counties and in the Connecticut Valley, Dalton in Berkshire County.

HORDEUM L. Barley

H. jubatum L. Waste ground and borders of marshes; occasional in the Boston District near the coast, and in Bristol, Dukes, Nantucket, Worcester and Berkshire Counties.

H. nodosum L. Filling; South Boston, *H. A. Young* in 1879.

H. marinum Huds. (*H. maritimum* With.). Waste ground; Boston, *C. E. Perkins* in 1879.

H. murinum L. Waste ground; Dracut, North Chelmsford, Billerica and Lowell in Middlesex County and Boston and Charlestown in Suffolk.

H. vulgare L. Barley. Waste ground; occasional in the Boston District and in Bristol, Nantucket (Bicknell in Bull. Torr. Club, xxxv. 201 (1908)), Franklin and Berkshire Counties.

H. distichon L. Boston, *C. W. Swan* in 1883 (Cf. Rhodora, xv. 150 (1913)).

LOLIUM L. Ryegrass

L. perenne L. Fields and waste ground; frequent in the Boston District and recorded from Barnstable, Dukes, Nantucket Hampshire, Hampden (Andrews, Cat. Springfield, 40 (1924)) and Berkshire Counties.

L. multiflorum Lam. Fields and waste ground; occasional in the Boston District and in Plymouth, Bristol, Nantucket, Worcester, Hampden (Andrews, Cat. Springfield, 40 (1924)) and Berkshire Counties.

Var. diminutum Mutel. (Cf. Weatherby in Rhodora, xix. 121 (1917)). Rare in Essex, Middlesex, Suffolk and Plymouth Counties.

L. temulentum L. Waste ground; Rowley in Essex County, Suffolk County without further locality.

Var. leptochaeton A. Br. (Cf. Fernald in Rhodora, xii. 185 (1910)). Suffolk County, *C. E. Perkins* in 1882.

SPHENOPHOLIS Scribn. Wedgegrass

S. obtusata (Michx.) Scribn. Dry soil; rare in Essex, Suffolk, Nantucket and Hampden Counties.

Var. **lobata** (Trin.) Scribn. Concord in Middlesex County, Milton in Norfolk, Granby in Hampshire and Monson in Hampden.

S. intermedia (Rydb.) Rydb. (*S. pallens* of Manual and var. *major* (Torr.) Scribn., cf. Hitchc. Man. Grass. U. S. 955 (1935)). Meadows and ditches; rare in the Boston District and in Hampshire and Hampden Counties, frequent in the valley area of Berkshire County.

S. nitida (Biehler) Scribn. (Cf. Fernald in Rhodora, xlvii. 198 (1945)). Woods; rare in southern Middlesex and in Norfolk County and in the Connecticut Valley, frequent in the valley area of Berkshire County.

(*S. palustris* (Michx.) Scribn.; cf. *Trisetum pensylvanicum*).

TRISETUM Pers.

T. spicatum (L.) Richter var. **molle** (Michx.) Beal. (*T. spicatum* of Manual in part; cf. Rhodora, xviii. 196 (1916)). Rocky and sandy woods and banks; rare in the Boston District and in Worcester, Franklin, Hampden and Berkshire Counties.

T. flavescens (L.) Beauv. Rare introduction; Harwich in Barnstable County and from an indefinite locality in the Connecticut Valley (Stone, Pl. Franklin, Hampshire and Hampden Counties, 9 (1913)).

T. pensylvanicum (L.) Beauv. (*Sphenopholis palustris* (Michx.) Scribn.). Swamps and meadows; rare in the Boston District and in Bristol, Barnstable, Nantucket (Bicknell in Bull. Torr. Bot. Club, xxxv. 475 (1908)), Franklin, Hampshire and Hampden (Andrews, Cat. Springfield, 35 (1924)) Counties.

DESCHAMPSIA Beauv. Hairgrass

D. elongata (Hook.) Monroe. Indefinite citation for the state (cf. Rhodora, xxxviii. 266 (1936)).

D. flexuosa (L.) Trin. Dry ground; frequent in the Boston District, common in the Southeast, occasional in Worcester County, Mount Toby in Franklin County, occasional on dry summits in Berkshire County.

D. cespitosa (L.) Beauv. var. **parviflora** (Thuill.) Richter. (*D. caespitosa* of Manual in part, cf. Fernald in Rhodora, xxviii. 153, 154 (1926)). Fields; Worcester in Worcester County, Mount Toby in Franklin and Washington in Berkshire.

Var. **glauca** (Hartm.) Lindm. (*D. caespitosa* of Manual in part, cf. above). Lowell in Middlesex County and Needham in Norfolk.

AIRA L.

A. caryophyllea L. Dry fields; locally common in Barnstable and Nantucket Counties.

CORYNEPHORUS Beauv.

C. CANESCENS (L.) Beauv. Sandy field; Edgartown, Dukes County, *E. P. Bicknell* in 1910–13.

AVENA L. Oats

A. FATUA L. Waste ground; occasional escape recorded from Middlesex, Suffolk, Norfolk, Hampshire, Hampden and Berkshire Counties.

A. HYBRIDA Koch. Waste ground; Newburyport, Essex County, *E. F. Williams* in 1898.

A. ORIENTALIS Schreb. (Characterized by a narrow secund panicle, mostly 2-flowered spikelets and glabrous lemmas). Wharf; Nantucket, *J. R. Churchill* in 1905.

A. SATIVA L. Waste ground; frequent escape throughout.

A. BARBATA Brot. (*A. hirsuta* Roth.). Dump, South Boston, *C. W. Swan* in 1886 (Cf. RHODORA, xv. 129 (1913)).

ARRHENATHERUM Beauv. Oat Grass

A. ELATIUS (L.) Beauv. Fields and roadsides; occasional in the Boston District and in Barnstable, Nantucket, Franklin, Hampshire, Hampden and Berkshire Counties, North Attleboro in Bristol County, frequent in Worcester County.

Var. BULBOSUM (Willd.) Spenner. (Var. *nodosum* (Reichenb.) Hubbard). Plymouth, *S. F. Blake*, no. 3854, in 1912.

Var. BULBOSUM forma STRIATUM (Hubbard) L. B. Smith.[1] Plymouth, *S. F. Blake*, no. 3855, in 1912.

HOLCUS L.

H. LANATUS L. Velvet Grass. Fields and open ground; common in the East, occasional westward.

DANTHONIA Lam. & DC. Oatgrass

D. spicata (L.) Beauv. (Including var. *longipila* auctt. in RHODORA, xxxviii. 266 (1936), not Scribn. & Merrill, cf. Fernald in RHODORA, xlv. 244 (1943)). Dry sterile fields or woods; common.

D. Alleni Austin. (*D. spicata* and *D. compressa* of Manual in part, cf. Fernald in RHODORA, xlv. 239, 240 (1943)). Open shores, rocky or arid openings, clearings and burns; found in the Boston District and Plymouth, Barnstable, Nantucket, Worcester and Berkshire Counties.

[1] ARRHENATHERUM ELATIUS (L.) Beauv., var. BULBOSUM (Willd.) Spenner, forma **striatum** (Hubbard) L. B. Smith, comb. nov. *A. elatius* (L.) Beauv., var. *nodosum* (Reichenb.) Hubbard, forma *striatum* Hubbard in RHODORA, xviii. 235 (1916).

D. compressa Austin. Dry open woods; frequent on the mainland, noted on Nantucket.

CALAMAGROSTIS Adans. Reedgrass

(Cf. Stebbins in Rhodora, xxxii. 35 (1930)).

C. canadensis (Michx.) Beauv. Wet places; common.

Var. **Macouniana** (Vasey) Stebbins in Rhodora, xxxii. 41 (1930). (*Deyeuxia Macouniana* Vasey, *Calamagrostis Macouniana* Vasey). Boxford in Essex County and Brewster in Barnstable, and apparently following the Swift River Valley with Dana in Worcester County and New Salem and Wendell in Franklin.

C. cinnoides (Muhl.) Barton. Swamps and wet ground; occasional in the Boston District, becoming more frequent in the Southeast but rare in Dukes County, occasional in Worcester County and the Connecticut Valley (Andrews, Cat. Springfield, 35 (1924)).

C. Pickeringii Gray. Meadows; Andover in Essex County.

Var. **debilis** (Kearney) Fernald & Wiegand in Rhodora, xv. 135 (1913). Andover in Essex County and Wilmington in Middlesex.

C. epigejos (L.) Roth var. georgica (C. Koch) Ledeb. Cf. Fernald in Rhodora, xxxv. 64 (1933). (*C. arenicola* Fernald). Upper edge of salt marsh in Gloucester, Essex County, and opening in sandy woods, Harwich, Barnstable County.

AMMOPHILA Host. Beachgrass

A. breviligulata Fernald in Rhodora, xxii. 71 (1920). (*A. arenaria* of Manual in large part). Dunes and beaches; common along the coast.

AGROSTIS L. Bent Grass

A. spica-venti L. (*Apera spica-venti* (L.) Beauv.). Indicated from Massachusetts on map without citation of locality (Cf. Hitchc. Man. Grass. U. S. 327, fig. 654 (1935)).

A. stolonifera L. (*A. alba* of Manual; cf. Fernald in Rhodora, xxxv. 317 (1933)). Meadows and fields; very common.

Forma **aristigera** Fernald l. c. Granville in Hampden County, *F. C. Seymour*, July 27, 1914.

Var. **palustris** (Huds.) Farwell in Rep. Mich. Acad. Sci. xxi. 351 (1920). (*A. polymorpha* var. *palustris* Huds., *A. alba* var. *maritima* G. Meyer, *A. stolonifera* var. *compacta* Hartm.; cf. Hitchc. Man. Grass. U. S. 783 (1935) under *A. palustris*). Mostly brackish sand; frequent along the coast, occasional in Berkshire County.

A. gigantea Roth. (Distinguished from *A. stolonifera* by its more robust habit, up to 1.5 m. high, its broader leaves, up to 11 mm. wide, its ample diffuse panicle and its mostly aristate lem-

mas; cf. Rouy & Foucaud, Fl. France, xiv. 61 (1913)). Waste land; Boston in Suffolk County and Cambridge in Middlesex.

A. TENUIS L. (*A. alba* var. *vulgaris* (With.) Coss. & Dur.; cf. Hitchc. Man. Grass. U. S. 785 (1935)). Fields and meadows; common.

Forma **aristata** (Parnell) Wiegand in RHODORA, xxvi. 2 (1924). Occasional in the Boston District and in Bristol, Dukes, Nantucket, Worcester, Hampshire and Berkshire Counties.

A. scabra Willd. (*A. hyemalis* of Manual in part, cf. Fernald in RHODORA, xxxv. 207 (1933)). Moist or dry open ground; common.

Forma **Tuckermani** Fernald l. c. Cambridge in Middlesex County and Braintree in Norfolk.

A. hyemalis (Walt.) BSP. (*A. hyemalis* of Manual in part, *A. antecedens* Bicknell; cf. Fernald in RHODORA, xxxv. 208 (1933)). Dry open ground; occasional in Barnstable, Dukes and Nantucket Counties, Worcester and Clinton in Worcester County.

A. perennans (Walt.) Tuckerman. Dry open ground and woods; common on the mainland, Naushon in Dukes County.

Var. **aestivalis** Vasey. (Cf. Fernald in RHODORA, xxxv. 318 (1933)). Common, but not reported from Plymouth, Dukes or Nantucket County.

A. altissima (Walt.) Tuckerman. (*A. perennans* var. *elata* (Pursh) Hitchc.; cf. Fernald in RHODORA, xlix. 109 (1947)). Moist ground, mostly near the coast; occasional in Middlesex and Norfolk Counties and in the Southeast.

A. CANINA L. Meadows and damp ground; occasional in the Boston District, Pelham in Hampshire County.

MIBORA Adans.

M. MINIMA (L.) Desv. Weed in nursery, Plymouth, *B. M. Watson* in 1915 (Cf. Hubbard in RHODORA, xvii. 97 (1915)).

CINNA L. WOODREED

C. arundinacea L. Borders of streams, swamps and wet woods; frequent on the mainland, Chilmark in Dukes County.

C. latifolia (Trev.) Griseb. Moist woods; rare in northern Essex and in Middlesex County, occasional in Worcester, Franklin and Hampshire Counties, and common in Berkshire.

ALOPECURUS L. FOXTAIL

A. MYOSUROIDES Huds. (*A. agrestis* L.). Waste ground; Suffolk County and Lowell in Middlesex County.

A. PRATENSIS L. MEADOW FOXTAIL. Fields and meadows; frequent except in the Southeast where known only from northern Plymouth County and Nantucket.

A. aequalis Sobol. (*A. geniculatus* var. *aristulatus* Torr., cf. Fernald in Rhodora, xxxii. 221 (1930)). Wet ground; occasional in the Boston District and in Worcester, Hampshire and Berkshire Counties.

A. geniculatus L. In water and wet ground; occasional in the Boston District and in Bristol, Barnstable, Nantucket, Worcester (Jackson, Fl. Worcester Co., 17 (1909)) Franklin and Hampden Counties.

POLYPOGON Desf.

P. MONSPELIENSIS (L.) Desf. Waste places; rare in Suffolk County and in northern Middlesex.

PHLEUM L.

P. PRATENSE L. TIMOTHY, HERD'S GRASS. Fields and waste places; very common

Var. NODOSUM (L.) Schreb. (Distinguished by its bulbous-thickened base). Recorded from Essex, Norfolk and Dukes Counties.

GASTRIDIUM Beauv.

G. VENTRICOSUM (Gouan) Schinz & Thell. (*G. australe* Beauv.). In wool waste; Lowell (RHODORA, xv. 127 (1913)) and Billerica in Middlesex County, South Boston.

MUHLENBERGIA Schreb.

M. uniflora (Muhl.) Fernald in RHODORA, xxix. 10 (1927). (*Sporobolus uniflorus* (Muhl.) Scribn. & Merr.). Meadows and bogs; frequent in the East on the mainland but not known from Dukes and Nantucket Counties, frequent in Worcester County, occasional in the Connecticut Valley and in Berkshire County.

M. sobolifera (Muhl.) Trin. Rocky woods and ledges; occasional in Essex, Middlesex, Norfolk, Worcester, Franklin, Hampshire and Hampden Counties.

M. tenuiflora (Willd.) BSP. Rocky woods; rare in Middlesex, Suffolk and Norfolk Counties, New Bedford, (E. W. Hervey, Fl. New Bedford, 90 (1911)) in Bristol, common in Worcester County (Jackson, Fl. Worcester Co., 16 (1909)), occasional in Franklin and Hampshire and frequent at lower altitudes in Berkshire County.

M. glomerata (Willd.) Trin. (*M. racemosa* of Manual, *M. setosa* (Biehler) Trin. ex Hook. f. & Jackson; cf. Hermann in RHODORA, xlviii. 63 (1946)). Meadows and low ground; rare in the Boston District and in Plymouth and Barnstable Counties.

Var. **cinnoides** (Link) Hermann in RHODORA, xlviii. 64 (1946). Rare from Middlesex and Norfolk Counties westward.

M. frondosa (Poir.) Fernald in Rhodora, xlv. 235 (1943). (*M. mexicana* of Manual, not (L.) Trin.). Woods, thickets and waste ground; frequent.

Forma **commutata** (Scribn.) Fernald, l. c. Occasional in Essex, Middlesex, Suffolk, Bristol, Barnstable and Dukes Counties.

M. sylvatica Torr. Moist woods and thickets; occasional in Middlesex, Suffolk, Norfolk and Worcester Counties, common in Franklin and Hampshire and frequent in Berkshire County at lower levels.

Forma **attenuata** (Scribn.) Palmer & Steyermark in Ann. Mo. Bot. Gard. xxii. 467 (1935). Rare in the Boston District and in Hampshire and Berkshire Counties.

Var. **robusta** Fernald in Rhodora, xlv. 236 (1943). Rare in Norfolk, Hampshire and Berkshire Counties.

M. mexicana (L.) Trin. (*M. foliosa* of Manual; cf. Fernald in Rhodora, xlv. 236 (1943)). Moist wooded or open ground; occasional from Essex, Middlesex and Suffolk Counties westward.

Forma **ambigua** (Torr.) Fernald, l. c. Rare in Essex, Middlesex and Worcester Counties.

M. Schreberi G. F. Gmel. Drop-seed, Nimble Will. Damp shady ground; rare to occasional in the Boston District and in Bristol County, Edgartown in Dukes and rare to occasional in Worcester, Hampshire, Hampden (Andrews, Cat. Springfield, 33 (1924)) and Berkshire Counties.

M. capillaris (Lam.) Trin. Hair Grass. Dry exposed ledges; Hingham in Plymouth County, *T. T. Bouve*, no date, and *J. R. Churchill*, Oct. 5, 1887, probably extinct, Mount Holyoke in Hampshire County.

SPOROBOLUS R. Br. Drop-seed

S. vaginiflorus (Torr.) Wood. Dry sterile soil; frequent in the Boston District and occasional elsewhere.

Var. **inaequalis** Fernald in Rhodora, xxxv. 109 (1933). Occasional in Worcester County, Charlemont and Sunderland in Franklin County and Amherst in Hampshire.

S. neglectus Nash. Dry soil; rare in Dukes County and occasional in the valley area of Berkshire.

S. asper (Michx.) Kunth. Dry sandy soil; rare in the Boston District and in Plymouth and Bristol Counties.

S. cryptandrus (Torr.) Gray. Sandy and gravelly soil; occasional in the Boston District chiefly near the coast and in Plymouth County.

HELEOCHLOA Host.

H. schoenoides (L.) Host. Waste ground; South Boston. Dying out, not collected since 1936.

BRACHYELYTRUM Beauv.

B. erectum (Schreb.) Beauv. Moist woods; Blue Hills (Milton or vicinity) in Norfolk County and Pittsfield in Berkshire.

Var. **septentrionale** Babel in Rhodora, xlv. 260 (1943). Occasional in the Boston District, becoming frequent westward and common in Berkshire County, but known only from New Bedford in the Southeast.

MILIUM L.

M. effusum L. Rich woods; Brookfield in Worcester County (Jackson, Fl. Worcester Co., 16 (1909)), Mount Toby in Franklin, Middlefield in Hampshire and Mount Greylock and West Stockbridge in Berkshire.

ORYZOPSIS Michx.

O. pungens (Torr.) Hitchc. Dry sandy woods or fields; frequent in the East on the mainland but not reported from Dukes or Nantucket County, occasional in Worcester County and rare westward.

(*O. canadensis* (Poir.) Torr. (*Stipa canadensis* Poir.).

No Massachusetts material of this species has been found, and it seems likely that all records from the State are due to its confusion with *O. pungens* in such works as the 6th edition of Gray's Manual, the Flora of Essex County and the Flora of Middlesex County).

O. asperifolia Michx. Dry open woods; frequent from the Boston District westward to low levels of Berkshire County, in Southeast known only from North Easton in Bristol County.

O. racemosa (Sm.) Ricker. Dry rocky woods in rich soil; rare in Essex, Middlesex, Norfolk and Worcester Counties, occasional in the Connecticut Valley and frequent in the valley areas of Berkshire County.

STIPA L. Feather Grass

(*S. canadensis* Poir.; cf. *Oryzopsis canadensis*).

S. avenacea L. Black Oat Grass. Dry open woods; rare in the Boston District, occasional in Bristol, Barnstable, Dukes and Nantucket Counties.

ARISTIDA L.

A. tuberculosa Nutt. In sand; rare near the coast in Essex, Middlesex and Suffolk Counties.

A. dichotoma Michx. Dry sandy soil; common in the East, frequent in Worcester County and occasional in the Connecticut Valley, Pittsfield in Berkshire County.

A. OLIGANTHA Michx. Waste land; South Boston in 1878, Northampton in Hampshire County in 1945.

A. longespica Poir. var. **geniculata** (Raf.) Fernald in RHODORA, XXXV. 318 (1933). (*A. gracilis* of Manual in part). Sandy soil; frequent in the East on the mainland, rare in Nantucket County, occasional in Worcester and Amherst in Hampshire.

A. purpurascens Poir. Dry sandy soil; occasional in the East including Bristol County (E. W. Hervey, Fl. New Bedford, 93 (1911)).

TRAGUS Hall.

T. BERTERONIANUS Schult. Flats; South Boston, *C. E. Perkins* in 1882.

LEPTOCHLOA Beauv. SPRANGLETOP

L. FILIFORMIS (Lam.) Beauv. Cotton waste from mills; Lowell and Malden in Middlesex County. Not collected since 1888.

(*L. fascicularis* of Manual; cf. *Diplachne maritima*).

ELEUSINE Gaertn.

E. INDICA (L.) Gaertn. GOOSEGRASS. Waste ground; rare in Essex, Middlesex, Suffolk, Bristol, Worcester (Jackson, Fl. Worcester Co., 18 (1909)), Franklin, Hampshire and Hampden Counties.

DACTYLOCTENIUM Willd.

D. AEGYPTIUM (L.) Richt. Waste ground; Malden in Middlesex County and Worcester City.

CYNODON Rich. BERMUDA GRASS

C. DACTYLON (L.) Pers. Waste ground; Boston, Nantucket, Millbury and Northbridge in Worcester County, Amherst in Hampshire and Springfield (Andrews, Cat. Springfield, 36 (1924)) in Hampden.

SPARTINA Schreb. CORDGRASS

S. pectinata Link. (*S. Michauxiana* Hitchc.; cf. Fernald in RHODORA, XXXV. 258 (1933)). Wet shores and the upper edges of salt marshes, especially near the coast; frequent in the East, Brookfield in Worcester County and Northampton in Hampshire.

Var. **Suttiei** (Farwell) Fernald in RHODORA, XXXV. 260 (1933)). Occasional in the Boston District and in Plymouth County, Brookfield in Worcester County.

S. cynosuroides (L.) Roth var. **polystachya** (Michx.) Beal. (*S. cynosuroides* of Manual in part; cf. Fernald in RHODORA, xlix. 113 (1947)). Upper edges of salt marsh and dry sandy ground beyond; occasional in the western half of Barnstable County, common on Nantucket.

S. alterniflora Loisel. (*S. glabra* Muhl. var. *alterniflora* (Loisel.) Merr.; cf. Fernald in Rhodora, xviii. 177 (1916)). Salt marshes; frequent along the coast.

Var. **pilosa** (Merr.) Fernald in Rhodora, xviii. 179 (1916). Salt marshes; frequent along the coast.

S. patens (Ait.) Muhl. With *Juncus Gerardi* the dominant cover on salt marsh along the coast.

Var. **monogyna** (M. A. Curtis) Fernald in Rhodora, xlix. 114 (1947). (Var. *juncea* (Michx.) Hitchc.). Occasional along the coast.

S. caespitosa A. A. Eaton. (*S. patens* var. *caespitosa* (A. A. Eaton) Hitchc.). Rare in Essex, Plymouth, Barnstable and Dukes Counties.

CHLORIS Sw.

C. virgata Sw. (*C. elegans* HBK.). Waste ground; South Boston in 1882 and Worcester in 1922.

BOUTELOUA Lag. Grama

B. rigidiseta (Steud.) Hitchc. (*B. texana* Watson). Flats; South Boston, *C. E. Perkins*, Aug. 2, 1882.

B. radicosa (Fourn.) Griffiths. Flats; South Boston, *C. E. Perkins*, 1882.

B. gracilis (HBK.) Lag. (*B. oligostachya* (Nutt.) Torr.). Waste ground; Danvers in Essex County and South Boston.

HIEROCHLOË R. Br.

H. odorata (L.) Wahlenb. Vanilla Grass. Damp meadows and fresh or brackish marshes, especially near the coast; frequent in the East including Nantucket (Bicknell in Bull. Torr. Bot. Club, xxxv. 190 (1908) as *Savastana odorata*) but not yet reported from Dukes County, Westboro in Worcester County, rare in the Connecticut Valley to frequent at higher levels in Berkshire County.

ANTHOXANTHUM L.

A. odoratum L. Sweet Vernalgrass. Fields and open ground generally; common.

A. aristatum Boiss. (*A. Puelii* Lecoq & Lamotte). Waste places; rare in Middlesex, Suffolk, Norfolk, Barnstable, Dukes and Hampshire (Stone, Pl. Franklin, Hampshire & Hampden Counties, 8 (1913)) Counties.

PHALARIS L.

P. canariensis L. Canary Grass. Waste places; occasional in the Boston District and in Bristol, Nantucket, Worcester and Hampden Counties.

P. arundinacea L. Reed Canary Grass. Wet places; frequent in the Boston District and westward; but known only from North Easton, New Bedford and Falmouth in the Southeast.

Forma variegata (Parn.) Druce, Fl. Berkshire, 556 (1897). (Var. *variegata* Parn., var. *picta* L.). Ribbon Grass. Waste places as a garden escape; occasional in Essex, Middlesex, Norfolk, Worcester, Franklin, Hampshire and Berkshire Counties.

LEERSIA Sw.

L. oryzoides (L.) Sw. Rice Cutgrass. Wet places; frequent.

Forma **glabra** A. A. Eaton in Rhodora, v. 118 (1903). Submersed, below tide limit; Newburyport in Essex County, *A. A. Eaton & M. L. Fernald* in 1902.

Forma **inclusa** (Wiesb.) Dörfler in Herb. Norm. cent. lv, lvi. 164 (1915). Cf. Fogg in Rhodora, xxx. 84 (1928). Rare in Essex, Middlesex, Plymouth, Barnstable and Dukes Counties.

L. virginica Willd. Wet woods; occasional in the Boston District and in Worcester County.

Var. **ovata** (Poir.) Fernald in Rhodora, xxxviii. 386 (1936). Occasional in the Boston District, the Connecticut Valley and Berkshire County.

ZIZANIA L. Wild Rice

Z. aquatica L. (Including *Z. palustris* of Manual; cf. Fassett in Rhodora, xxvi. 156 (1924)). Shallow fresh water; frequent in the Boston District, occasional in Plymouth, Barnstable and Nantucket Counties, rare in Worcester and Hampden Counties.

Var. **brevis** Fassett in Rhodora, xxvi. 157 (1924). Fassett indicates specimens from Amesbury and Rowley in Essex County as approaching this variety.

Var. **angustifolia** Hitchc. in Rhodora, viii. 210 (1906). Waquoit in Barnstable County, *H. St. John*, Sept. 5, 1911.

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EQUISETUM PALUSTRE, EXAMPLE OF CARELESS BIBLIOGRAPHY AND PHYTOGRAPHY

M. L. Fernald

Finding myself obliged to learn something, aside from 55 years of field-experience, of the correct names and characters of the more striking vegetative forms of *Equisetum palustre* L. Sp. Pl. 1061 (1753), I have automatically turned to such usually authoritative works as those of Milde, Klinge and Luerssen in Europe, and the supposedly critical work of Marie-Victorin in America. The further I have tried to follow their guidance the deeper I have got into the morass (*palus*) where the species chiefly occurs, or, as my friend, Dr. Arthur Stanley Pease, remarks, in trying to pull the snarls out of a horse-tail I have got into a mare's nest! This is not because of the heterogeneous variation, for the vegetative forms under which the species disguises itself both in Eurasia and North America, can mostly be easily recognized, when one has the fundamental *specific* characters in mind. The difficulties are largely the utter confusion as to the minor categories, so that recent authors, who should know better, cite earlier students as calling variations *formae* when they had not done so, or, still more puzzling, ascribe to authors statements which, apparently, they did not make. A further matter, most difficult to understand, is the separation by Marie-Victorin of the American plants, as distinguished from the Eurasian, on supposed (and illustrated) characters which I am quite incapable of making out.

Discussing first the last of the points above mentioned, in order somewhat to clear the field, we have Marie-Victorin's thesis, in his Équisétinées du Québec, Contrib. Lab. Bot. Univ. Montréal, no. 9: 50–63, figs. 6–13 (1927), that the American plants differ from the Eurasian true *Equisetum palustre* because, he says, the latter has the teeth of the primary (cauline) sheaths "ovate-lanceolate, obtuse, generally shorter than the tube, broadly white-margined (des gaines munies de 6–8 dents ovées-lancéolées obtuses, généralement moins longue que les gaines, largement marginées de blanc)"; whereas the American plant has the teeth longer than the tube of the sheath and narrowly linear-lanceolate, acuminate, acute, with the white margin very

narrow (pp. 50 and 51). This contrast is certainly a most difficult one to find supported by the Eurasian specimens, the descriptions by the most accurate European students and the better European plates. Thus Milde, Mon. Equiset. 325, said: "Zähne breit-lanzettförmig-zugespitzt, breit weisshäutig-gerandet, zum grössten Theile schwarz"; and Luerssen, Die Farnpfl. described the Zähnen as "breit lanzettlichen zugespitzten". Although sometimes in the American specimens the teeth are as long as or longer than the tube of the sheath, the difference is not sufficiently constant to be convincing; similarly, although the white scarious margin is commonly narrower than in most European specimens, broad margins occur in North America and narrow margins in Europe. Altogether, these very trivial differences, too often breaking down on both continents, support the conclusion of the late A. A. Eaton in Fern Bull. ix. 62 (1901) that these "and various other [unstated] minor differences might be noted, but hardly enough to justify its erection into a geographical variety, at least until the differences are found to be constant." Surely the supposed differences emphasized by Marie-Victorin are anything but constant.

The vegetative fluctuations of *Equisetum palustre* are bafflingly numerous and some authors, for instance the very careful Douval-Jouve, Hist. Nat. Equisetum de France, 202 (1864), have asserted that they may arise from the same rhizome and are not recurrent in different years ("Les variations extrêmes de cette espèce n'ont pas assez de permanence pour être citées comme variétés; elle ne persistent pas d'une année à l'autre et on les trouve quelquefois toutes sur un seul et même rhizome"). Everyone in recent years seems to agree that these vegetative forms should be treated as formae, not as true geographic varieties; but they have very generally disregarded the elementary fact that nomenclaturally and taxonomically variations published as varieties cannot be properly ascribed to their original authors as their forms. For instance, one of the most striking of forms is a series of plants, well known to pre-Linnean botanists and very definite in having the numerous strongly ascending branches cone-bearing at tip. This was *E. palustre* "β. Equisetum palustre minus polystachyon. *Bauh. pin.* 16", etc. of L. l. c. (1753). In 1789 in his Hist. Pl. Dauphiné, iii. pt. 2: 835 (1789) Villars had

essentially the same treatment, *E. palustre* L. and "B. *Equisetum minus polystachion.* B[auhin]. *pin.* 16" etc., whereupon Milde, Höheren Sporenpfl. 110 (1865) and in his more extensive Mon. Equiset. 329 (1865) cites in the former *E. palustre*, var. "polystachyum Vill." and in the latter *E. palustre*, var. **"polystachium Vill. hist. pl. Dauph. 1786"** (the date of vol. i, not vol. iii); others, therefore, citing "var. *polystachium* Vill." as published in vol. i, although Villars in vol. iii had, as noted above, merely repeated the polynomial of Bauhin and other early authors, just as Linnaeus had originally done. Apparently the first formal taking up of the tricky name was by Weigel, Fl. Pomerano-Rugica, 187 (1769), where it appeared in proper modern form as *E. palustre*, (B) *polystachion*, with a detailed description. Consequently, following the easy-going technique, it appears in Rouy, Fl. France, xiv. 499 (1913) as var. *polystachyum* (not *polystachion*) Weigel!

Milde, taking up var. *polystachium* as of Villars, who, as just pointed out, merely used the pre-Linnean polynomial phrase, divided it into two forms: "*a*) *Forma corymbosa.* Syn. E. corymbosum Bory. msc. Spicae ramorum in formam corymbi dispositae"; and "*b*) *Forma racemosa.*" Those were clearly designated as *formae.* The International Rules specify without quibble that under each category (species, variety or form) we must use the first name adequately published for the plant in each category, regardless of whether it is antedated by an older name in another category. Luerssen, l. c., cites them as "forma polystachya Villars" (Villars having merely used the old phrase of Bauhin: *Equisetum minus polystachion*) and then ascribed to Milde the "Unterformen" (subforms) **"forma racemosa** Milde" and **"forma corymbosa** Milde", quite regardless of Milde's own treatment. I am aware, as is everyone who has looked into German and Germanic taxonomic treatments of the past (and too often of the present), of the utter confusion there made of the categories and the easy-going freedom with which the groupings of cited authors are distorted. Nevertheless, if the rule that we must take up the first name used within the accepted category is followed, we can only occasionally accept much which purports to be authoritative in continental European bibliography. Without such a rule the confusion would be worse. Most

fortunately, in the case of forma *polystachion* (Weigel), it was properly treated in 1864 as forma *polystachyon* Duval-Jouve, l. c. 247 (1864), and that combination seems to have right-of-way. Incidentally, as shown in the next item, those who work on *Equisetum* would find a treatise of unusual accuracy in the volume by Duval-Jouve.

The discussion of many other such lapses or failures to follow exact bibliographic details in the case of *Equisetum palustre* may be deferred to the comments under the forms at the end of this paper, but two are so typical of the muddy thinking which is too common that they may here be noted. In his detailed paper Marie-Victorin in 1927 sets up as a brand-new variety his *E. palustre*, var. *americanum* (p. 51); then he defines under it some formae, the first of these being "f. **luxurians** n. f. Syn.: *E. palustre* var. *ramosissimum* Peck Rep. N. Y. State Mus. **25:** 107. 1871". Obviously, if Marie-Victorin considered Peck's var. *ramosissimum* (1871) identical with a form of his var. *americanum*, he should have used that name for the variety. Again, Broun, Index N. Am. Ferns, 91 (1938), explicitly stating that true *E. palustre* is "A Eurasian species, represented in North America by: Var. **americanum** Victorin", proceeds on p. 92 to publish **"Var. americanum forma tenue** (Döll) n. comb.", this based on "var. *tenue* Döll, Rhein. Fl. 29. 1843." Quite obviously the name var. *tenue* (1843) antedates by more than three fourths of a century the varietal name given by Victorin and accepted by Broun. Incidentally, if the Eurasian *E. palustre* and its varieties and forms do not occur in America, how does Döll's var. *tenue* from Germany happen to belong under the professedly distinct North American var. *americanum*? Finally, the correct combination, *E. palustre* forma *tenue* (but as *tenuis*, following the very general old custom of making it agree in gender with *forma*) (Döll) Duval-Jouve, l. c. 248 (1864) antedates by 74 years the superfluous combination of Broun.

As I understand the forms of *Equisetum palustre* which have been found in North America, they may be distinguished as follows. It should be said, however, that the weeks of bibliographic research necessary to unsnarl the very confused Old World treatments might lead to the adopting of somewhat different combinations.

a. Stem with whorls or tufts of branches borne regularly from the nodes....*b.*
b. Nodal branches all simple....*c.*
c. Stem erect, with 3–many branches diverging symmetrically as whorls....*d.*
d. Cone borne only from summit of stem....*e.*
e. Branches from median and upper nodes (above submerged-level) strongly arched-ascending to suberect....*f.*
f. Branches 1.5–6 cm. long
Teeth of sheaths white-margined....*E. palustre* (typical).
Teeth blackish, without white margins....forma *nigridens.*
f. Branches 0.7–3 dm. long, very strongly ascending.....forma *verticillatum.*
e. Branches from median and upper nodes horizontally or subhorizontally divergent.....forma *arcuatum.*
d. Cones borne at tips of many ascending branches forma *polystachion.*
c. Stem prostrate, greatly elongate, its elongate (up to 4 dm.) strongly ascending or erect branches mostly in pairs (1–5).....forma *fluitans.*
b. Nodal branches (at least the lower ones) with short branchlets.....forma *ramulosum.*
a. Branches only 1 or 2 (rarely 3) at a node, irregularly scattered, or none.
Main or principal stem elongate, with many nodes, 2–4 mm. thick, with or without more slender secondary stems.....forma *simplex.*
Main axis nearly suppressed, the very numerous slender erect stems or branches nearly uniform and 1–2 mm. thick.....forma *filiforme.*

Equisetum palustre L. Sp. Pl. 1061 (1753); Duval-Jouve, Hist. Nat. Equiset. 246 (1864) with detailed European bibliographic citations; Milde, Mon. Equiset., t. xiii, fig. 4 ("Normale, gewöhnliche Form"). Forma *verticillatum* Milde, forma a. *breviramosum* Klinge in Archiv. Naturk. Liv.-Esth. u. Kurland, ser. 2, viii. 401 (1882); Luerss. Farnpfl. 709 (1889). Var. *americanum* Victorin, Équisét. Quebec, Contrib. Lab. Bot. Univ. Montréal, no. 9: 51 (1927) in part, not the type.

Marie-Victorin, l. c. 50, seems to have misunderstood the Linnaean description, for he there writes: "La diagnose princeps de l'*E. palustre: E. caule angulato, frondibus simplicibus* [with reference to L. Sp. 1061] indique comme type une plante dépourvue de rameaux". Although, according to Victorin, quoting Newman, the material preserved in the Linnaean Herbarium is confused and inadequate, it is evident that by "frondibus", as opposed to "caule", Linnaeus referred to the branches. Note his original description, drawn from his Flora Suecica, of *E. sylvaticum:* "EQUISETUM caule spicato, frondibus compositis", the latter phrase clearly referring to the characteristically much

forked branches. Note also the other references given by Linnaeus for his *E. palustre: E. setis simplicibus internodia vix superantibus* of Royen, Flora Suecica and Dalibard: *E. palustre* of Flora Lapponica, where the Royen phrase-name was given; and Bauhin's *E. palustre, brevioribus setis.* Others of Linnaeus's diagnoses indicate the same meaning of frondibus: *E. "arvense* scapo fructificante nudo, sterili frondoso", etc.

Forma NIGRIDENS (St. John) Victorin. Var. *nigridens* St. John, Bot. Expl. Gulf St. Lawr. Reg.—Victoria Mem. Mus. Mem. 126: 42 (1922). Var. *americanum* forma *nigridens* (St. John) Victorin, l. c. 63 (1927).

A local form with the usual white margins of the teeth lacking.

Forma VERTICILLATUM Milde, Gefäss-Cryptog. Schles.—Nov. Act. Acad. Caes. Leopold.-Carol. Nat. Cur. xxvi. 460 (1858). Forma *verticillatum* forma b. *longeramosum* Klinge, l. c. 402 (1882). Forma *longiramosa* Luerss. l. c. 709 (1889). Var. *americanum* Victorin, forma *luxurians* Victorin, l. c. 56, in part (excl. synonym and type).

Milde's forma *verticillatum* was clearly described with "die Aeste in der Mitte des Stengels 2½″-5″ (6.6–14.8 cm.) long, thus coming into the lower range of the form with long ascending branches. Although Milde, with absolute definiteness, published his "*Forma verticillatum*" in 1858, Klinge in 1882 marched in with forma "1. **verticillatum** (f. n.)" and under it "a. **breviramosum** (f. n.)" and "b. **longeramosum** (f. n.)"; and Luerssen, likewise had the two latter forms as **"forma breviramosa** Klinge" and **"forma longiramosa** Klinge" subordinate to **"forma verticillata** Milde". If they intended these and some others as *subforms* they surely did not say so. Forma *longeramosum* was assigned by its author upright ("aufrecht") branches up to 30 cm. long. Forma *verticillatum* (*f. longeramosum*) is the most common form in North America, the specimens before me being twice as numerous as are those of typical *E. palustre.*

Forma ARCUATUM Milde, Gefäss-Cryptog. Schles.—Nov. Act. Acad. Caes. Leopold.-Carol. Nat. Cur. xxvi. 461 (1858). *E. palustre,* 4. *arcuatum* Milde, Höheren Sporenpfl. 109 (1865). Var. *arcuatum* Milde, Mon. Equiset. 328, t. xiii, fig. 1 (1865). Var. *americanum,* f. *luxurians* Victorin, l. c. 56, fig. 11 on p. 59 (1927).

Forma *arcuatum*, relatively infrequent, has the median and upper whorls of branches horizontally or subhorizontally divergent, varying from 0.4–2 dm. or more long, thus being like forma *verticillatum* and typical short-branched *E. palustre* but with wide-spreading branches. The very extreme plant originally described by Milde had the branches arching downward ("bogig herabgekrümmt") and "bis 4" (1 dm.) long. Much of the material cited by Marie-Victorin as his f. *luxurians* is characteristic f. *verticillatum* but the isotype before me and his illustration are f. *arcuatum*. Incidentally, though really important, in setting up his forma *luxurians* Marie-Victorin cited without a word of doubt the var. *ramosissimum* of Peck (see p. 281), but forma *luxurians*, as described, as shown by an isotype and as illustrated with the original publication, has quite simple branches, whereas in Peck's var. *ramosissimum* "the branches are themselves furnished with branchlets." In other words it belongs to forma *ramulosum* Milde. Furthermore, if the author of the newly proposed var. *americanum* (1927) thought that it included var. *ramosissimum* (1871) he should have taken for the variety the first name in that category as conceived by him.

Forma POLYSTACHION (Weigel) Duval-Jouve, Hist. Nat. Equiset. 247 (1864) as f. *polystachyon*. *E. palustre* β. *Equisetum palustre minus polystachyon* L. Sp. Pl. 1061 (1753); Villars, Hist. Pl. Dauph. iii². 835 (1789). *E. palustre*, (B) *polystachion* Weigel, Fl. Pomerano-Rugica, 187 (1769). *E. palustre*, 7. *polystachyum* "Vill." with forma *corymbosa* (Bory ex Milde) and f. *racemosa* Milde, Höheren Sporenpfl. 110 (1865). *E. corymbosum* Bory ex Milde, l. c. (1865). Var. *casuarinaeforme* Schur as syn. ex Milde, l. c. (1865). Var. *polystachium* A. Br. in Am. Journ. Sci. xlvi. 85 (1844); "Vill." ex Milde, Mon. Equiset. 329 (1865) including f. *corymbosa* and f. *racemosa*. Further twists of the bibliography by various later students include such distortions by Klinge as forma "**polystachium** Vill. . . . a. **corymbosum Bory** (als Art)". See p. 280.

A very striking but relatively rare form, comparable with *E. arvense* L., f. *campestre* (C. F. Schultz) Klinge.

Forma FLUITANS Victorin. Var. *americanum*, f. *fluitans* Victorin, l. c. 60, fig. 13 on p. 62 (1927).

The ascending, slender branches, borne unilaterally on the prostrate and sometimes rooting stem, often exceed Marie-Victorin's 5–10 cm. In *Fernald, Long & Fogg*, no. 1185 from

Main River, Bonne Bay, Newfoundland, they reach a length of 3.5 dm.; in A. A. Eaton, no. 42, from Fort Kent, Maine, they are more numerous and up to 4 dm. long.

Forma RAMULOSUM (Milde) Klinge, l. c. 404 (1882), wrongly ascribed to Milde. Forma *ramulosa* Luerss. l. c. 710 (1889), wrongly ascribed to Milde. *E. palustre*, 5. *ramulosum* Milde, Höheren Sproenpfl. 109 (1865). Var. *ramulosum* Milde, Mon. Equiset. 328 (1865). Var. *ramosissimum* Peck, Ann. Rep. N. Y. State Mus. Nat. Hist. 107 (1873). Var. *americanum*, f. *ramosissimum* (Peck) Broun, Index N. Am. Ferns, 92 (1938).

Milde's original brief description, "Aeste unter ihren Scheiden je 1–2 secundäre Aestchen tragend; Stengel sehr schlaff, fast niederliegend," was later expanded in his Monograph where he said the flaccid stem climbed among bushes and was 1½–3 feet tall. Such American specimens as I have seen are smaller: *A. A. Eaton's* no. 130 from Fort Kent, Maine, being only 2.5 dm. high; *Fernald & Long*, no. 12,312 from Fairfield, Maine, slightly more than 4.5 dm. high, with the slightly forking and divergent branches up to 2 dm. long.

Forma SIMPLEX Milde, Gefäss-Crypt. 460 (1858). Var. *tenue* Döll, Rhein. Fl. 29 (1843); Milde, Mon. Equiset. 327, t. xiii. figs. 2 and 3 (1865). Var. *simplicissimum* A. Br. in Am. Journ. Sci. xlvi. 85 (1844). Forma *tenue* (as *is*) (Döll) Duval-Jouve, l. c. 248 (1864). Forma *simplicissima* (A. Br.) Luerss. l. c. 712 (1889), wrongly ascribed to A. Br. Var. *americanum* Victorin, l. c. 51 (1927) in part, including type. Var. *americanum*, forma *tenue* (Döll) Broun, Index N. Am. Ferns, 92 (1928).

Marie-Victorin, having conceived true or typical *Equisetum palustre* L. as the extreme form without branches or with them few, short and irregularly disposed, i. e. forma *simplex*, he logically selected as the type of his var. *americanum* a similar American plant. His description calls for "rami nulli, vel aliter pauci et irregulariter verticillati". The isotype of var. *americanum* in the Gray Herbarium is easily matched by European specimens. The fact that Broun, considering the North American plants distinct from the Eurasian, bases a form of var. *americanum* upon a German type has already been commented on (p. 281).

Forma FILIFORME Lacks. ex Klinge, l. c. 406 (1882). Var. *nanum* Milde, Verhandl. Zool.-bot. Gesellsch. Wien. xiv. 13 (1864), Höheren Sporenpfl. 109 (1865) and Mon. Equiset. 328, t.

xiii, fig. 6 (1865). Forma *nanum* (as *nana*) (Milde) Luerss. l. c. 713 (1889), wrongly ascribed to Milde who had it as a var.

This extreme form, with very many essentially uniform filiform or capillary branches ascending from an abbreviated base was well illustrated by Milde. Klinge, publishing the herbarium-name of Lackschewitz, cited var. *nanum* Milde and especially his figure as the same form. It is well represented by such specimens as *Fernald & Long*, no. 1186 from Main River, Bonne Bay, Newfoundland; *Victorin*, no. 15,038 from Lac St.-Jean, Quebec; *A. A. Eaton*, no. 130, from Fort Kent, Maine; *Fernald & Pease*, no. 16,987 from Errol, New Hampshire.

THE USE OF DDT IN THE PREPARATION OF BOTANICAL SPECIMENS

Richard A. Howard

Botanists who collect plant materials in the tropics are confronted with the problem of protecting their plants from insect attacks while in the press and while in storage, once dry. Specimens are usually collected in large numbers, with reasonable care being taken to remove unsightly specimens or those badly infected with insects. The specimens are then placed between newspaper and dried rapidly over artificial heat or by slower solar heating. When dried, the plant specimens are tied in bundles and kept in a dry place until they can be shipped or brought back to the United States.

The amount of artificial heat used in drying specimens is rarely enough to kill the insects trapped in the flowers or fruits. Thus, during the storage period these insects may continue to destroy the specimen, or insect eggs may have an opportunity to hatch and the larvae feed on the dried plant material. The capacity of many insects in devouring plant specimens is amazing. In a relatively short time all the anthers and pollen, the complete flower, or in certain genera and families even the complete plant will be eaten by infesting or trapped insect pests.

In an attempt to control this insect deterioration of specimens, both in the drying process and while in storage, the author tried various combinations of commercial DDT during several months of collecting in the Dominican Republic last fall. Com-

mercial DDT was purchased from drug and hardware stores and was used in three ways: 1. straight or 100% DDT, powdered, 2. 10% DDT mixed with talc, and 3. 10% DDT mixed with para-dichloro-benzene. These products were applied to the specimens by using a large salt shaker or a cardboard box in which holes had been punched. The specimens were arranged on the newspaper and were sprinkled lightly with DDT. Any thick or heavy flowers or fruits were given a larger dosage of DDT than the leaves. Specimens from the special families listed below were also given heavier dosages of DDT. After the specimens were dry and the plants were tied in bundles ready for storage, all sides of the packages were dusted heavily with DDT.

The results of this treatment were very satisfactory. For the first time in the tropics the author was not bothered with insect damage and specimens could be stored in airy and dry rafters or rooms without worry or the need of constant inspection. The results were evident in a short time, since DDT killed most insects within thirty minutes after contact. Specimen sheets showed dead insects and larvae where the animals had crawled from the dusted specimens and died before reaching the edge of the paper. No living insects were found in any of the bundles, and there was no contamination from the outside after three months of storage. In addition, it was found that when sprinkling DDT on the plants while preparing the specimens some of the compound landed on the floor. After the debris was cleaned up, enough DDT was left on the premises to keep the room or camp site free from cockroaches, ants, spiders or scorpions for as long as the camp was used.

Many people still regard the use of DDT as dangerous. It is not if a little care is taken in its use. DDT is not dangerous in small quantities, but it should not be dusted on food or food containers nor should too much be inhaled. I do not know anyone who is allergic to DDT. It will not harm the skin; in fact, during the war it was reportedly used as a dusting powder for body insects.

Once the specimens have arrived at the laboratory or are ready for mounting, most of the powder can be blown freely from the specimens. If a specimen was damp or if heavy application of DDT was necessary, this powder may have caked and can then

be removed with a small paint brush or a camel's hair brush. Any grains of DDT remaining on the specimen will give lasting protection against insects in the herbarium.

It is worth noting that certain families of plants in the tropics are more likely to be infected with insects than others. These same families are more frequently attacked in the herbarium, insects often showing a decided preference for these groups. Included are the following families: Bromeliaceae, Liliaceae, Iridaceae, Zingiberaceae, Orchidaceae, Cruciferae, Capparidaceae, Leguminoseae (particularly Cassia), Malvaceae, Melastomaceae, Onagraceae, Solanaceae, Ericaceae, Asclepiadaceae, Lobeliaceae, and Compositae. Specimens from any of these families should be protected by dusting with DDT when the specimen is prepared in the field.

For my own work 100% DDT is preferred. Only a light dusting is necessary when the worker knows that every particle is effective. That may be wasteful, but DDT is reasonable in price and can be used freely. The mixture of DDT and para-dichloro-benzine was used to test the para-dichloro-benzene as a repellent and also as a drying agent. The repellent effect was not evident, since all insects were killed, and the drying effect on such groups as the Orchidaceae and Bromeliaceae was scarcely noticeable.

It is certainly felt that the slight extra effort of applying DDT in the field was worth the peace of mind and the improved specimens free from insect damage.

Society of Fellows, Harvard University.

Vicia Sepium in New Brunswick.—The pretty *Vicia Sepium* L. has been under observation by the writer since 1941. It has definitely established itself here at Grand Falls, N. B. in a waste place along the top of a bank of the Saint John River; and it continues to spread. Older manuals list the plant from Maine, New Hampshire, Quebec and Ontario. Yet Marie-Victorin in his Flore Laurentienne does not mention it. For the Quebec record see H. E. Sargent in Rhodora **2:** 225. 1900. Dr. Fernald also reports it from Nova Scotia in Rhodora **24:** 176. 1922. As a voucher for this record of *Vicia Sepium* from New Brunswick, specimens, *Habeeb*, July 24, 1947, Grand Falls, N. B., have been deposited at the Gray Herbarium.—Herbert Habeeb.

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